

REMARKS

Reconsideration is respectfully requested. Claims 1-4 and 7-15 are present in the application. Claim 1 is amended. Claims 5-6 were canceled previously. No other claims are amended herein.

**Request that the Detroit 4846871 and 5041153 patents and Fischbein 5366534 patent be cited of record.**

In reviewing the filing history, we cannot locate a PTO-892 Notice of References Cited that shows Detroit 4846871 and Detroit 5041153 and Fischbein et al US 5366534 being of record in the application. Applicants respectfully request that a citation form be made of record so the documents will appear on the front page of any issuing patent.

**Responses to substantive portions of the Action.**

Claim 1 is amended to address the Examiner's mention of having a unit to the ration therein. Support for this amendment is found on page 3 of the specification, line 1.

Claims 1, 3, 7-10, 12 and 14 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Detroit (US 4846871 or US 5041153). Applicant respectfully traverses.

The composition according to the present invention is different from that disclosed in Detroit's patents.

Lines 54-56 in column 3 of Detroit '871 (and column 3, lines 65-66 of Detroit '153) teach that "Ground mono-ammonium phosphate (MAP) (16-200 + Mesh) was stirred with 30% water

containing lignosulfonate...." This sentence means that ground mono-ammonium phosphate being 70% of the total was stirred with water being 30% of the total. That is, the ratio of water to the ground mono ammonium phosphate disclosed in example II of Detroit is 42.8% (30/70), that is outside of the range, 25-35%, defined in the condensing step according to the present method. Thus, the composition of the present application is different from those disclosed in Detroit's patents, and, it is respectfully submitted that the differences would not be obvious.

Claims 1, 3-5, 7-10, 12 and 14 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Fischbein et al (US 5360465). Applicants respectfully traverse.

Fischbein et al (US patent 5366534) discloses granular potassium sulfate preparation and a process for production of the granular potassium sulfate preparation. Lines 63+ in Col. 2 specify that the granular potassium sulfate product of the present invention comprises from about 75 to 90% by weight potassium sulfate, from about 4 to 15% by weight of ammonium phosphate as the hardening agent bound to the potassium sulfate, and from about 2.0 to 5.0% by weight of aluminum sulfate. However, the fertilizer according to the present invention comprises ammonium phosphate, 3-35% by weight of release-controlling material and 25-35% by weight of water, based on the dry weight of the ammonium phosphate. Thus, the composition of

the fertilizer according to the present invention is totally different from that of granular potassium sulfate according to US 5366534.

The major part of the granular potassium sulfate is the potassium sulfate, 75-90%. Line 26 in Col, 4 of Fischbein et al discloses that the concentration of the lignosulfonate may vary from 0 to about 5% by weight. The amount of 5% is the percentage of the lignosulfonate to the total weight of the granular potassium sulfate, not to the ammonium phosphate. However, the amount of 3-35% referring to the release controlling-materials (lignosulfonate) specified in the present invention is the percentage of the release-controlling materials to the weight of the ammonium phosphate. Thus, the specification that the concentration of the lignosulfonate may vary from 0 to about 5% by weight is meaningless to the present invention.

The granular potassium sulfate according to the Fischbein patent does not possess the characteristic of being release controlled. Lines 11-14 in Col. 2 of Fischbein US patent 5366534 discloses that the present invention also provides a novel chloride free controlled release fertilizer "when the novel granular potassium sulfate product is coated with a material which provides controlled release characteristics." That is, a material that provides controlled release characteristics must be coated on the granules when the controlled release characteristic is necessary.

Under the circumstances that

1. The composition of the product according; to the present invention is different from that of the patent, and

2. The characteristics of the final products are different. The fertilizer product according to the present invention possess a controlled release characteristic, but the granular potassium sulfate according to the patent doesn't possess the controlled release characteristics.

The present invention would not have been obvious to a person of ordinary skill in the art when the invention application was filed.

Claims 1-4 and 7-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Rohwer (US. Pub. 200410099027) in view of Young (US Patent 3354095), RU 2165912 and Berry et al. (US Patent 4695387) and further in view of CN 1163250.

Applicants respectfully traverse.

Rohwer discloses a "Manufacturing Method for Zeolite Containing .Fertilizer." The method of producing a rechargeable, slow release agricultural fertilizer, comprises (claim 1 of the Publication)

providing a particulate zeolite component;  
providing a particular calcium carbonate component;  
mixing the particulate zeolite component with the  
particulate calcium carbonate component; and  
processing of the resultant mixture for distribution.

The key points of Rohwer reside in the rechargeable and slow release characteristics (claim 1). Thus, the zeolite component is the major part of the fertilizer. Claim 8 of Rohwer discloses that a commercial fertilizer may be added to the mixture prior to processing in an amount generally about 10 percent, by weight, of the zeolite component. That is, the commercial fertilizer, for example ammonium phosphate, is the minor component (only 10%) in the fertilizer of Rohwer. The zeolite component is 10 times the ammonium phosphate. However, ammonium phosphate is the major component in the present fertilizer. The release-controlling material is only 3-35% of the weight of ammonium phosphate. Thus, the basic formulation of the present invention is different from that of Rohwer.

Young (US 3,354,096) relates to "Pelleted Zeolite Composition Possessing Improved Crushing Strength." Lines 57-64 in col. 3 of Young state that

- According to a preferred embodiment of the invention, excess alumina is added to the composition. In this modification, the zeolite may be slurried or mulled in an aqueous alumina suspension or paste, to which is added the desired proportion of mono- or dihydrogen ammonium phosphate, or phosphoric acid. The resulting wet mixture is later dried, pelleted and calcined to decompose the ammonium ions ...

That is, the wet mixture is then dried, pelleted and calcined, not only "dried and pelleted" as alleged by the Examiner. Those who have ordinary skill in the art know that the step of calcining will make the properties of the particles totally

different. The Examiner cannot ignore the fact that the method disclosed in Young requires the step of calcining. If fact, the step of calcining in Young is required because it is concerned with a field of catalyst, not the fertilizer field as disclosed in the present invention. Therefore, those who have ordinary skill in the art cannot infer the fertilizer of the Applicants' invention in view of Young's patent about the field of catalyst.

RU2165912 is directed to a "Method of Preparing Granular Nitrogen Phosphate Fertilizer." This method comprises preparing granular fertilizer based on neutralization of phosphoric acid or phosphoric and sulfuric acids with ammonia being carried out by feeding pulp into zeolite granulation and drying apparatus (Detailed Description). This document attached to the Official Action concerning this patent is vague to the Applicant because its description is too simple to verify how many and what steps comprise this patent. The only description that relates to the method of the present invention is "Method of preparing granular fertilizer based on neutralization of phosphoric acid or phosphoric and sulfuric acids with ammonia is carried out by feeding pulp into zeolite granulation and drying apparatus." The only information disclosed in this description is that the mixture is dried and granulated as alleged by the Examiner (because of the granulation and drying apparatus). No steps of mixing evenly, condensing, etc. are disclosed. Specifically,

this patent doesn't disclose how much zeolite is mixed in the mixture.

Berry et al. (US 4,695,387) relates to "Removal of Ammonia from Wastewater," not to a method of making controlled release ammonium phosphate fertilizer according to the Applicant's invention. Lines 48-50 in col. 3 of the Berry et al patent teach that a pH between 4 and 6 is an ideal range of operation for the zeolite adsorbent for Removal of Ammonia from Wastewater. The adjusting of pH between 4 and 6 is to make the zeolite adsorb ammonia more efficiently and to continuously keep balance to the added alkali. That is, the interaction between the zeolite and ammonia is physical adsorption, not the allegation of the Examiner "where the ammonia and phosphoric acid are reacted." Lines 5-7 on page 6 of the present invention teach that these functional groups of the organic release controlling materials (lignosulfonate) cause chemical bonding with  $\text{NH}_4^+$  and  $\text{H}_2\text{PO}_4^-$  groups of the ammonium phosphate and also cause complexing with  $\text{H}_2\text{PO}_4^-$ . Those who have ordinary skill in the art know that physical adsorption is totally different chemical bonding. Therefore, the disclosure of this patent gives no hint to the present invention. Furthermore, this patent relates to a process for the removal of ammonia from wastewater, not to fertilizer. How can a person in the field of treating wastewater infer the fertilizer in view of the fact that a pH between 4 and 6 is an ideal range of operation for the zeolite adsorbent.

CN 1163250 teaches "Zeolite ammonium phosphate synergist."  
This patent discloses that natural zeolite is crushed,  
pelletized and mixed (**not compounded, please check the CN patent carefully. The abstract of English version of this patent is not translated correctly** (note that the applicants of this present application are skilled in reading Chinese language)) with ammonium phosphate into zeolite ammonium phosphate, not "the zeolite is crushed and mixed evenly with ammonium phosphate and pelletized." The order of the steps disclosed in this patent is "crushed," "pelletized" and "mixed" not "crushed," "mixed" and "pelletized." This order is critical and important to the present invention. If the fertilizer according to CN 1163250 is pelletized first, then the zeolite in the mixture only has a small chance to contact ammonium phosphate, and thus cannot form essential chemical bonding between the zeolite and ammonium phosphate to produce the release controlled fertilizer. Because the surfaces of the fertilizer granules and zeolite granules are much less than those in powder form, the fertilizer granules have no essential controlled release effect as disclosed in the Applicant's invention.

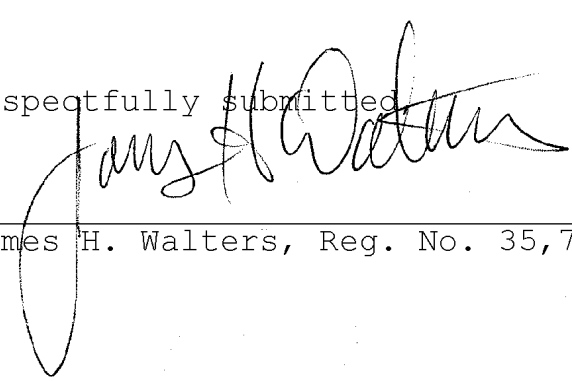
Therefore, claims 1-4, and 7-15 are allowable under 35 U.S.C. §103(a) over Rohwer (US Pub. 200410099027) in view of Young (US Patent 3354096), RU 2165912 and Berry et al. (US Patent 4695387) and further in view of CN 1163250.



Applicants respectfully note that they have compared the present application with Rohwer (US Pub. 200410099027), Young (US Patent 3354096), RU 2165912 and Berry et al. (US Patent 4695387) in the previous response and believe that the present application possesses an inventive step over these prior art documents. However, the Examiner continues her opinion without what applicant considers to be persuasive argument. Applicants respectfully request that the Examiner's position be reconsidered.

In light of the above noted amendments and remarks, this application is respectfully submitted to contain allowable subject matter and notice thereof is respectfully solicited. The Examiner is asked to contact applicant's attorney at 503-224-0115 if there are any questions.

Respectfully submitted

  
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